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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

AJIBADE AKONAI, OLUMIDE

ART UNIT

PAPER NUMBER

2617

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/563,941	Applicant(s) COSTA ET AL.	
	Examiner OLUMIDE T. AJIBADE AKONAI	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17, 18 and 21-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17, 18, 21-28, 30 and 32 is/are allowed.
- 6) ☒ Claim(s) 29 and 31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see pages 6-8 of the remarks, filed December 6, 2008, with respect to the rejection(s) of claim(s) 17-31 under 35 U.S.C. § 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Yamada et al 20020105918 and Lindoff et al 20050107039.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any

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inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 29 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yamada et al 20020105918 (hereinafter Yamada)** in view of **Lindoff et al 20050107039 (hereinafter Lindoff)**.

Regarding **claim 29**, Yamada discloses a mobile station, in a radio cell of a radio communication system divided into radio cells transmitting data by multiple access methods, each radio cell having a base station for radio provisioning mobile stations assigned to the radio cell (see figs. 1 and 2, p.3, [0038]), comprising: a receiver receiving base station signals of the radio cell, and signals transmitted from adjacent radio cells (MS2 receiving signals from BS2 and signals from uplink signals between MS1 and BS1, see figs. 1 and 2, p.3-4, [0044], [0046]), and utilizing time slots of jointly assigned carrier frequencies of an adjacent base station as radio transmission resources wherein the base station and the adjacent base station simultaneously and jointly employ a time slot of a carrier frequency for radio provisioning of the mobile station (MS2 in cell 2 and MS1 in cell 1 are assigned the same timeslot to use for communication, see figs. 1-4, p.3-4, [0044]-[0045]), and selecting the time slot from the commonly assigned radio transmission resources taking account of an

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interference situation in the time slot (selecting another time slot or decreasing communication speed at a timeslot allocated to MS1 and MS2 if there is interference that leads to a deterioration in communication, see figs. 1-4, p3-4, [0044]-[0046]).

Yamada does not disclose a receiver receiving base station signals of the radio cell and adjacent radio cells, a processor determining from the base station signals, a synchronizing value for at least one of time synchronizing and frequency synchronizing to which said mobile station synchronizes itself.

Lindoff however, discloses in a wireless communication system comprising a plurality of cells (see fig. 1, p.2, [0027]), a receiver receiving base station signals of the radio cell and an adjacent radio cell (inherent since a mobile station has to present to receive signals from a cell A and remote cell B, see fig. 1, p.2-3, [0027]-[0028]); and a processor determining from the base station signals, a synchronizing value for at least one of time synchronizing and frequency synchronizing to which said mobile station synchronizes itself (inherent since the mobile station receives the desired signal from a base station in cell A, and the interfering signal from a base station in cell B, and utilizing the received signals to determine estimated synchronization, see p.2-3, [0027]-[0028], [0038], [0040]-[0042]).

It would therefore have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Lindoff, by calculating a synchronization position based on signals received from signals

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from neighboring cells, into the system of Yamada for the benefit of eliminating co-channel interference to mobile stations.

Regarding **claim 31**, Yamada discloses a radio communication system divided into radio cells transmitting data by multiple access methods, each radio cell having a base station for radio provisioning mobile stations assigned to the radio cell (see figs. 1 and 2, p.3, [0038]), comprising: a time slot unit assigned to a corresponding radio cell (MS2 in cell 2 and MS1 in cell 1 are assigned the same timeslot to use for communication, see figs. 1-4, p.3-4, [0044]-[0045]), assigning time slots of jointly assigned carrier frequencies of an adjacent base station as radio transmission resources wherein the base station and the adjacent base station simultaneously and jointly employ a time slot of a carrier frequency for radio provisioning of a mobile station (MS2 in cell 2 and MS1 in cell 1 are assigned the same timeslot to use for communication, see figs. 1-4, p.3-4, [0044]-[0045]), and selecting the time slot from the commonly assigned radio transmission resources taking account of an interference situation in the time slot (selecting another time slot or decreasing communication speed at a timeslot allocated to MS1 and MS2 if there is interference that leads to a deterioration in communication, see figs. 1-4, p.3-4, [0044]-[0046]); and at least one mobile station, each in a corresponding radio cell, receiving base station signals of the radio cell, and signals transmitted from adjacent radio cells (MS2 receiving signals from BS2 and signals from uplink signals between MS1 and BS1, see figs. 1 and 2, p.3-4, [0044], [0046]).

Yamada does not disclose at least one mobile station, each in a corresponding radio cell, receiving base station signals of the corresponding radio cell and adjacent radio cells and determining, from the base station signals, a synchronizing value for at least one of time synchronizing and frequency synchronizing of the at least one mobile station.

Lindoff however, discloses in a wireless communication system comprising a plurality of cells (see fig. 1, p.2, [0027]), at least a mobile station in one of the cells, the mobile station comprising a receiver receiving base station signals of the radio cell and an adjacent radio cell (inherent since a mobile station has to present to receive signals from a cell A and remote cell B, see fig. 1, p.2-3, [0027]-[0028]); and a processor determining from the base station signals, a synchronizing value for at least one of time synchronizing and frequency synchronizing to which said mobile station synchronizes itself (inherent since the mobile station receives the desired signal from a base station in cell A, and the interfering signal from a base station in cell B, and utilizing the received signals to determine estimated synchronization, see p.2-3, [0027]-[0028], [0038], [0040]-[0042]).

It would therefore have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Lindoff, by calculating a synchronization position based on signals received from signals from neighboring cells, into the system of Yamada for the benefit of eliminating co-channel interference to mobile stations.

Allowable Subject Matter

4. Claims 17-28, 30, and 32 are allowed.
5. The following is an examiner's statement of reasons for allowance:

Regarding **claims 17 and 32**, Yamada et al 20020105918 discloses a method for synchronizing a radio communication system divided into radio cells transmitting data by multiple access methods, each radio cell having a base station for radio provisioning mobile stations assigned to the radio cell, comprising: receiving at the mobile station of the radio cell, base station signals of the radio cell and adjacent radio cells; determining, from the base station signals received at the mobile station, a second synchronizing value for at least one of time synchronizing and frequency synchronizing. Lindoff et al 20050107039 discloses employing timeslots of commonly assigned carrier frequencies as radio transmission resources, wherein at least two adjacent base stations simultaneously and jointly employ a timeslot of a carrier frequency for radio provisioning a respectively assigned mobile station; and selecting the timeslot from the commonly assigned radio transmission resources taking account of an interference situation in the timeslot.

The instant invention discloses receiving at the base station of a radio cell, mobile station signals of the radio cell and adjacent radio cells; determining, from the mobile station signals received at the base station, a first synchronizing value for at least one of time synchronizing and frequency synchronizing to which the base station synchronizes itself. The above novel features in combination with

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the other recited limitations of the claim are neither taught, suggested, nor made obvious by Yamada et al, Lindoff et al, or any other prior art of record. Claims 18 and 21-27 are allowable based on their being dependent on claim 17.

Regarding **claims 28 and 30**, Yamada et al discloses a base station, in a radio cell of a radio communication system divided into radio cells transmitting data by multiple access methods, for radio provisioning mobile stations assigned to the radio cell, comprising: a receiver receiving mobile station signals of the radio cell. Lindoff et al discloses utilizing time slots of jointly assigned carrier frequencies of an adjacent base station as radio transmission resources wherein the base station and the adjacent base station simultaneously and jointly employ a time slot of a carrier frequency for radio provisioning of a mobile station, and selecting the time slot from the commonly assigned radio transmission resources taking account of an interference situation in the time slot.

The instant invention discloses receiving mobile station signals of the adjacent radio cells, and a processor determining from the mobile station signals, a synchronizing value for at least one of time synchronizing and frequency synchronizing to which said base station synchronizes itself. The above novel features in combination with the other recited limitations of the claim are neither taught, suggested, nor made obvious by Yamada et al, Lindoff et al, or any other prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should

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preferably accompany the issue fee. Such submissions should be clearly labeled

“Comments on Statement of Reasons for Allowance.”

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chennakeshu et al 6,091,936 discloses a method and apparatus for reducing co-channel interference.

Hogger 6,490,262 discloses interference in a cellular communications system.

Soderkvist et al 6,516,199 discloses reducing interference in telecommunications systems.

Gitlits 5,859,841 discloses a method and apparatus for frequency allocation in a cellular telecommunications network.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to OLUMIDE T. AJIBADE AKONAI whose telephone number is (571)272-6496. The examiner can normally be reached on M-F, 8.30p-5p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Appiah can be reached on 571-272-7904. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

OA

/Charles N. Appiah/
Supervisory Patent Examiner, Art Unit 2617